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Dance/Movement Therapy and Tai Chi For Seniors with Dementia

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Running head: DANCE/MOVEMENT THERAPY AND TAI CHI

Dance/Movement Therapy and Tai Chi

For Seniors with Dementia

by

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Submitted in partial completion of the Master of Science Degree

in Dance/Movement Therapy at Sarah Lawrence College

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Abstract

This thesis examines the integration of Tai Chi movements into a dance/movement therapy group with members of an adult care community who have been diagnosed with dementia. Information is provided on the origins, concepts and movement principles of Tai Chi. A brief analysis of existing research supports the application of Tai Chi movement principles in dance/movement therapy treatment for the elderly with dementia. The application of Tai Chi in dance/movement therapy sessions is as an integrated and adapted form, in which the movements follow the traditional conceptual frame, characteristics and elements, but are specifically designed to meet the needs of a population of seniors with dementia. The conclusion of this paper discusses possible challenges for reaching treatment goals when Tai Chi is integrated into dance/movement therapy treatment for seniors with dementia.

Keywords: *Dance/Movement Therapy, Tai Chi, seniors, elderly, older adults, dementia, Alzheimer's disease, exercise, mental-emotional health, quality of life*

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"I don't know who you are, but I love you!"

Undisclosed patient with dementia

Introduction

Aging affects all three layers of health: physical, mental and emotional. The inter-dependent confluence of the body, mind and spirit requires a holistic therapeutic approach in treating the symptoms of aging. While aging, older adults can experience disruptions and difficulties in maintaining their emotional health and level of social engagement. This can be attributed to a decrease in physical strength and lack of interest in creative or social activities. Seniors who are affected by age-related diseases run a higher risk of being inactive, chronically ill and predominantly dependent on caregivers, resulting in a rapid decline in their quality of life (Sandel & Johnson, 1987).

In China, Tai Chi has been used for many centuries in traditional medicine and is practiced by people of all ages, especially seniors. Tai Chi's dancelike movements are as popular as they are under-researched, and are just now the focus of many current studies.

There is evidence demonstrating that Tai Chi has a positive effect on cognitive abilities among dementia-diagnosed participants, in comparison to those who did not experience Tai Chi (Blake & Hawley, 2012). Even though the overall cognitive level often remains relatively unchanged, a decrease in apathy and depression has been noted. This change is a mo-

tivational argument for future research into Tai Chi principles and its integration into dance/movement therapy (DMT) for seniors diagnosed with dementia.

During my clinical internship at a suburban adult care community, and as dance/movement therapy graduate student intern group facilitator, I was able to note attitude transformations and behavioral changes among a small group of seniors with dementia. Existing clinical information about the emotional and physical impact of Tai Chi led me to investigate the effect of Tai Chi movements as integrated into DMT sessions with two groups of seniors diagnosed with dementia.

Clinical Evidence of Tai Chi Physical and Mental Gains Among Seniors

Tai Chi improves seniors' overall quality of life and reduces feelings of anxiety, depression and fear, while building "awareness in which the mind controls inner thoughts, cultivates mental capability and sustained mindful attention to internal and external sensory stimuli" (Wei et al., 2014, p. 1).

In 2001, Li et al. worked with controlled and intervention groups to research the effectiveness of Tai Chi in enhancing elderly individuals' psychological well-being. Measures were taken at baseline, at three months, and after six months of Tai Chi activities. The results indicated that the intervention group showed higher levels of life satisfaction, positive affect and psychological well being. Lower levels of depression, negative affect and psychological

distress were also indicated. This longitudinal study suggests that Tai Chi may be an effective tool for improving psychological health in older adults (Li et al., 2001).

The evidence base for the impact of Tai Chi on psychosocial well-being was evaluated in both meta-analysis and systematic reviews, published by Wang et al. (2009, 2010). The research application on mental health concluded that Tai Chi appeared to be associated with improvements in psychological well-being, including reduced stress, anxiety, depression and mood disturbance, and increased self-esteem.


In 2012, Zhang et al. conducted an extensive literature review in an effort to research and prove the psychological effectiveness of Tai Chi for different populations, including the elderly. His findings showed that Tai Chi could positively transform one's confidence, vitality, and motivation, which resulted in an overall improvement in mental health and psychological well-being (Zhang et al., 2012). The results showed that 60-80-year-old Tai Chi practitioners had significantly higher results in these categories than the average 60-80-year-old. The reports also addressed significant improvements in healthy behaviors, mood state and overall quality of life. According to Zhang et al. (2012), Tai Chi practice is posited to decrease sadness, confusion, anger, tension and fear, as well as increase energy, happiness, self-esteem and self-efficacy. The literature supports the claim that Tai Chi has a positive psychological benefit and promotes psychological well-being, which includes the reduction of mental health disorders, anxiety, and depression (Zhang et al., 2012).

Blake and Hawley's 2012 overview of other current selective evidence examined the relationship between Tai Chi and physical, neurocognitive and psychosocial outcomes for

older participants. The key for unlocking an elderly person's latent physical or mental potential lies in enlivening their belief that they still can do things independently. By adapting different psychosocial activities in order to maintain quality of life among the elderly, DMT treatment has the potential to provide a meaningful relationship with oneself and with others, offering an emotional experience to a person suffering neurocognitive disorders such as dementia.

Why Tai Chi?

The Origins of Tai Chi

Tai Chi (Ch'uan) translates as "Grand Ultimate" (Rones & Silver, 2007). The Western world today mostly uses the sole term Tai Chi, which is symbolically represented by a graphic of black and white semi-circles , interconnected and ever-present through respective black and white dots.

Tai Chi stands for the interrelatedness of body, mind and spirit through movement, breath and cognition. With visualization and focus on internal and external awareness, Tai Chi is a sequence of slow-paced, graceful movements of the upper limbs, coordinated with weight shifts and slight rotations of the torso (Blake & Hawley, 2012).

Tai Chi's origins can be traced to a blending of Taoist, Buddhist and Confucian traditions, according to which the universe is ruled by a harmonious exchange of energy and alternating dyads of presence such as: day and night, birth and death, and health and illness,

among others (Rosenfeld, 2013). Yin and Yang, as interdependent polarities, are the foundation for the Tai Chi conceptual frame, uniting the mind and body through one's breath. The receptive and active state of contrast evolves in the routines and forms through movements, expressing the outer forces, Yang, and the inner play of the mind, Yin, that are always connected through breath (Chitty, 2013). Tai Chi interchanges the forces between Yin and Yang by using the positive (constructive) and negative (destructive) power that exists within our bodies.

Tai Chi is based on non-resistance against the incoming force, and it counsels instead to meet force with softness. Through this attitude, the opposing force can be redirected or transformed. Tai Chi is seen as a choreographic form for the body and mind to become attuned to the rhythms of life (Yu, 2004).

Principles in Taoist Philosophy

Tao evolved over centuries and had its influence on ethics, religion, martial arts and traditional medicine in China and other East Asian countries. The fundamental Tao concept of a non-forceful action in achieving vitality, spontaneity and peace, has the full potential to be integrated into therapeutic methodologies (Rosenfeld, 2013). The non-forceful and effortless action as a primary Tao attitude and concept may inform the treatment of seniors and may be further integrated within the psychosocial therapy offered to seniors who demonstrate a progressive decrease in their active living.

Tai Chi-Based Movement

Breathing

There are two habitual ways of breathing: costal breathing, which happens in the upper lungs, moving between the nose and upper chest, and abdominal-diaphragmatic breathing, which involves full-lung capacity and moving between the nose and lower abdomen (Dowd, 1996). Costal breathing is considered by many breathing theories and practices as partial and incomplete, depriving the body system of the full re-charge with a vital Qi (McClelland, 2012). Seniors appear to rely on costal breathing, so any application of breathing with movement may well improve the range, strength and depth of breath.

On the other hand, abdominal-diaphragmatic breathing in sitting or standing positions offers the body an experience of revitalization and healthier spine alignment, especially when combined with reaching upward through inhalation and rooting downward through exhalation. Spine alignment is what Tai Chi applies in order to sustain a fluid body movement. Body alignment among seniors can be maintained when appropriate movement awareness through breath is practiced.

Imagining the slow opening of an umbrella during inhalation, and its closing with exhalation, provides a visual and visceral experience of how the diaphragm operates as the main breathing support organ (Sellers-Young, 2011). Another image that is useful for full three-dimensional breathing is the image of a cylinder in the middle of the rib cage. When focused on this image, one can widen and expand during inhalation and narrow and shrink during exhalation (Goodwill, 2005). The images indicated above, if applied in the warm-up

segment of a DMT session with seniors with dementia, can offer an expansion of the capacity of body and mind to refine and harmonize the breathing pattern. Tai Chi movements are deliberately constructed to accompany the natural flow of the breath, its dynamics and quality, as described above. The slow and rhythmic breathing motion serves both the movement and the peaceful pauses during Tai Chi-based movement exercises.

The Body Qi

The body as a vessel of human life is also the container of one's life force or primordial energy—Qi. The human body uses two kinds of energies: prenatal Qi and postnatal Qi (Holland, 2000). The prenatal energy carries imprints of the two parents, while the postnatal is cultivated daily through food, water, breathing and movement (Rosenfeld, 2013). Breathing enhances both the prenatal and postnatal Qi, while body movement distributes it throughout the body, creating one's vitality (Holland, 2000).

The latent body/mind potential depends on the quality and quantity of both kinds of Qi during an individual's lifetime. Since one does not have the power to change the prenatal energy, one can accumulate, transform and maintain the postnatal one. Qi defines one's quality of interaction with others and the perception of self, as well as determining one's emotional stability and mental clarity (Holland, 2000). Qi catalyzes one's vigor, storing energy in the body and collecting it in centers called "*dan tien*," which when translated means crystal energy compounds (Rones & Silver, 2007). There are three "*dan tien*" centers in the human body, one in each cavity of the trifold body: head, chest and pelvis.

The Threefold Body in Tai Chi Movement

An image of the body being a three-story house can be evoked, where the head, chest and pelvis are the essential energy (Qi) centers. The threefold body image is differentiated as a tree with its three parts: roots (lower limbs), trunk (torso) and branches (head, upper limbs) and emphasizes the importance of rooted connection with earth (Rosenfeld, 2013). Tai Chi movements are flexible like a willow tree and strong as an oak at the same time (Yu, 2004). Those images come into play when working to achieve body awareness and alignment.

The upper level of the body, or the head (mouth/tongue, nose, eyes) and upper limbs (arms/shoulders, elbows, wrists/palms), is involved both in standing or seated Tai Chi-based movement. The middle level of the body, or the torso (chest, heart, stomach, pelvis), is carried in space, guiding the Tai Chi movements, while the lower level of the body—lower limbs (thighs/hips, knees, feet/ankles) propels transitions in standing. Irene Dowd writes about the importance of the pelvic gravity center in standing, vividly describing how “the pelvis itself travels through space, just as the hub of a whole, it carries the rest of the body along” (Dowd, 1996, p. 19). With age, it is noticeable that the upper body changes its alignment, leaning forward, while the pelvis remains behind the center axis line, especially when medical equipment is used for support. A healthy body posture following the centerline allows the movement to be fluid.

An individual moving sees through the eyes, mindfully moves in and through space with his/her arms, torso and feet, and feels the movement with his/her heart. The Tai Chi

path starts from the eyes, feet, palms and pelvis, goes through the elbows, knees, and solar plexus, and ends with the arms, hips and chest—the movement is constantly evolving (Rosenfeld, 2013). During Tai Chi movement this wave-like sequence is performed with sustained effort, supported by slow breathing with a relaxed tongue, while the mind stays tranquil and still like clear water.

Upper Body Movement

Through the eyes, one can interact with others and with the environment. The eyes, together with the tongue and the nose, play an important role in upper body movement (Gelb, 1994). The eyes look evenly and move first in a direction, cooperating with the intent of the mind. The eyes are focused on the upper extremities in motion, a sequence similar to when a flower is picked, where the person who picks the flower first looks and sees, then acts.

The head is suspended over the torso. Tension in the mouth may restrict the breathing process. When the jaw is relaxed, the breath flows freely. Tai Chi requires the mouth to be closed, with lips slightly open, and tongue gently touching the roof of the mouth cavity. The back of the mouth is on the centerline of the throat, chest, abdomen, and feet and lies on the central axis of the spinal alignment (Dowd, 1996, p. 24, fig.9).

The pattern of breath flowing through the nose coordinates the entire body movement. The upper limbs interact with the surroundings by reaching out, expanding, embracing, giving, taking, grasping or letting go. In Tai Chi when arms are apart, they maintain a soft, circular extension (Liang & Wu, 2014). The upper body, head and limbs have the potential to

express the intent and quality of one's movement. The upper limbs shape space in different directions. The shoulders are relaxed, the elbows are heavy, but the flow of movement is alive. Seated in chairs, seniors can fully apply upper body movements, unless a physical disability is present.

Mid-body Movement

The middle section of the body centers its weight. The axis line of the spine with the alignment of the chest and pelvis creates a balance between the left and right sides, and the upper and lower levels of the body. As breath fills the chest, the mid-body initiates and echoes the shaping of the upper body. The waist rotates the upper body, while the pelvis/lower back sinks down like "a feather" as it interacts with the gravitational force (Rones & Silver, 2007, p. 69). The torso is like a vertical column, rotating around the central axis in a non-forceful and spontaneous action (Yu, 2004). The rotation of the mid-body is applicable in seated position, although slightly limited. The image of a seated emperor describes the importance of the solid, rooted base, formed between the two feet and the pelvis, providing practical help for seniors in maintaining straight posture while sitting on chairs (Rones & Silver, 2007, p. 15).

Lower Body Movement

The lower limbs are the vehicle taking one's body on a journey into space, carrying and distributing one's body weight. The lower body interacts with space, directing the movement

in different pathways. The entire body's motion is rooted in the feet, maintaining constant equilibrium. A body standing like "a great mountain" requires constant realignment of all three parts (Yu, 2004, p. 96).

Observations From the Internship Site: DMT Sessions with Tai Chi-Based Movement Activities for Seniors with Dementia

I obtained clinical information for this thesis from an adult care community, which provides patient-centered health care and rehabilitation for seniors, structured within a contemporary and progressive vision for memory care, assisted and independent living. The on-site holistic approach, which includes spiritual, medical, therapeutic and rehabilitation care-giving, offers daily activities and services to nurture the elderly body, mind and spirit.

The senior residents have age-related physical, mental and emotional challenges, such as different stages of dementia and Alzheimer's Disease, among other secondary diseases. Some seniors are diagnosed with more pronounced signs of dementia, which differentiate them from typical age-related forgetfulness. Other seniors are confined to wheelchairs or use assistive devices for support.

Applying Tai Chi-based movements as part of a DMT session can be challenging because of the underlying issues of compromised balance, fear of falling, and cognitive confusion among seniors diagnosed with dementia. Based on the interrelatedness of mind, body and spirit, combining physical movement, breathing techniques, cognitive visualization and

focused internal awareness, Tai Chi supplies inner calmness and has both physical and psychological therapeutic value among seniors (Blake & Hawley, 2012). Tai Chi-based movement explorations, directed in different planes as pairs of actions, activate both the body and mind. The slow-sustained dynamic of the sequences functions as a roadmap for improvement of both the physical and emotional condition of seniors.

Due to the fact that seniors are a slower-moving population compared to other communities, their dynamics of reaction and active participation were colored differently. Slow movement is where Tai Chi met this particular population's characteristics. We, the group and I, both developed skills to be present in the moment of a slow, soft and smooth movement flow, experiencing Tai Chi-based movements.

I noticed that it seemed difficult for some seniors with dementia to assimilate the movement tasks right away, so repetition became a safe structure for them. Through repetition, they became more self-sufficient, assured in function and more comfortable in expressing the movement. Repetition benefited the enhancement of their physical and mental concentration and control, evidenced by prolonging the duration of the movement practice and therefore the body/mind connection.

As a DMT graduate student intern group facilitator, I was able to see attitude and behavioral changes among the group members, which is valuable information to gather about the emotional and physical impact that Tai Chi-based movement can have on some participants. I observed the progressive change of the body shaping in space, which became more relaxed, open and expansive. Starting with the posture and breath at ease, making slow and

soft gestures, in an even, simple and repetitive rhythm, seniors were able to gradually and markedly improve their energy, directness, spontaneity and motivation over the 15-week period of Tai Chi-integrated sessions.

I also noticed that a clear verbal intervention and simplification of the movements was needed for seniors diagnosed with dementia, whatever the stage. The group members frequently needed to be redirected in their attention and intent during their personal movement explorations. When the group's focus was redirected and dynamics of the movement were applied, a successful achievement of sustained-slow-direct movement assisted the members' capacity for non-verbal self-expression, as well as helped them exhibit a different range of movement. Group synchrony was gradually achieved, though it depended on the stages of group members' memory, cognitive impairment and the simplicity of the suggested movements. Overall, synchrony supported participants' feelings of connection within their community.

With slow music intermittently used to help the group members sustain the even movement flow, I noticed that the group connected and interacted better with their body weight, achieving a different level of lightness. Activating their physical and mental potential through gentle Tai Chi-integrated movements and slow music, appeared to give them a sense of mastery over time and an overall feeling of independent existence for the length of the DMT session.

Bringing constant awareness to the even flow of the breath pattern, led to an easier execution of most movements. Breathing pattern changes were visible in a few participants,

showing engagement in the abdominal/diaphragmatic region, rather than just habitual costal breathing. Those who became more aware (through breath) of their lower (pelvic) energy and balance center (*dan-tien*), were motivated to do the movement sequences in a standing, rather than seated position. Additionally, breath awareness seemed to help improve dynamic balance, overall strength and mindful connection to the movement.

The duration of the Tai Chi-based activities were adjusted to the physical and mental conditions of the elderly participants. My observations showed that the most effective duration for the Tai Chi-based activities was 20-25 minutes as part of a 45-minute DMT session. I experimented with the use of Tai-Chi integration at various stages of the DMT session: as a warm up, as a theme development, or as a closure. Those who had physical challenges, such as weak or compromised balance, started their practice seated, but in our last weeks, some of the participants were willing to stand and tolerated an upright posture for at least 10 minutes, sometimes longer, and demonstrated self-confidence in their ability to do so. Standing practice was beneficial for those seniors who appeared to have motivation to stand longer than they had previously demonstrated. Moreover, standing seemed to improve their tactile acuity in walking, as observed after the sessions.

Within the progression of our sessions, some of the participants demonstrated better spatial orientation and strength, confidently shifting their weight and standing in an upright posture. Their quality of movement, though still affected by their health challenges, started to resemble the Tai Chi movement characteristics, becoming smoother and lighter.

At the end of each session, seniors who were actively and continuously engaged in the process exhibited simultaneously relaxed moods and peaceful states of mind, evidenced by a brighter affect and positive attitudes toward the group activity. Their physical and mental appearances were often expressed and shared through verbal comments as well.

Conclusion

Although the unstable concentration and diminished physical and cognitive capacity of seniors diagnosed with dementia often limited their full participation, Tai Chi-based movement integrated into the DMT sessions provided participants embodied physical experience as well as supported the mental and emotional health among seniors with dementia. The importance of a safe and non-threatening environment for the elderly with dementia is important in order to fulfill the goals of any new DMT intervention, including Tai Chi-based dance/movement therapy. Therefore, the movement activities were adapted according to the physical capabilities of the participants, and prolonged standing, or standing at all, were taken into account as potential limitations.

The practice and observation during the Tai Chi-based movement activities integrated into dance/movement therapy groups demonstrated that the sessions should be defined, not by seniors' deficits, but rather by insisting on seeing and specifying the strengths of each participant. When Tai Chi-based movement activities were applied to DMT sessions, a potential path for improving in-the-moment concentration, spatial orientation and attention to detail

emerged: patients were encouraged to name the explored movement forms, repeat and understanding the movement patterns during each session.

Some seniors exhibited improved balance, breathing, posture and movement flow, and increased their upper body movement range during each session. Tai Chi also provided an emotional expression through imagery, improving seniors' self esteem and confidence through increased sense of mastery, and awakened their sense of belonging to a group. Some seniors achieved the motivation necessary for future community or personal initiatives.

When Tai Chi-integrated DMT community programs for seniors diagnosed with dementia are established, there arise new opportunities for sensitive and more precise investigation of the unique population of frail seniors with dementia and their need for maintaining quality of life.

Slow....Soft...Smooth

I always thought

That past was better

I could accomplish more

I do more with my life

Then I started a Tai Chi class

Slow

Smooth

Soft

Completely foreign for me

Slowness become perfect

Calms me, gives me patience

Something I never felt before

Now I know today

I love doing art so much

It slows down my life even more

Gives me slow, smooth, calm

I was not aware of what is best for me

I have now found

What I know unconsciously

Self discovery is powerful

Fulfilling my potential

(S.B., DMT Group Member, April 2015)

References

- Blake, H. & Hawley, H. (2012). Effects of Tai Chi exercise on physical and psychological health of older people. *Current Aging Science*. 5, p.19-27.
- Chitty, J. A. M. (2013). *Dancing with Yin & Yang: Ancient Wisdom, Modern Psychotherapy and Randolph Stone's Polarity Therapy*. Singapore: Polarity Press. Co.
- Dowd, I. (1996). *Taking Root to Fly: Articles on Functional Anatomy*. G & H SOHO, Inc.
- Gelb, M. (1994). *An Introduction to the Alexander Technique: Body Learning*. New York: Henry Holt and Company. (2nd. Ed.)
- Holland, A. (2000). *Voices of Qi: Introductory Guide to Traditional Chinese Medicine*. Berkeley, CA: North Atlantic Books.
- Liang, S. Y. & Wu, W. C. (1996). *Simplified Tai Chi Chuan: 24 & 48 postures with Application*. Roslindale MA: YMAA Publication Center.
- Li, F., Duncan, T. E., Duncan, S. C., McAuley, E. Chaumeton, N. R. & Harmer, P., (2001). Enhancing the psychological well-being of elderly individuals through Tai Chi exercise: A latent growth curve analysis. *Structural Equation Modeling*, 8(1), 53–83.
- Li, F., McAuley, E., Harmer, P., Duncan, T. E., & Chaumeton, N. A. (2001). Tai Chi enhances self-efficacy and exercise behavior in older adults. *Journal of Aging and Physical Activity*, 9(2), 161–171.
- McClelland, J. (2012). The inspiration of breath. Retrieved from J. McClelland personal website <http://www.jeanmcclellandvoice.com>.

Rones, R. & Silver, D. (2007). *Sunrise Tai Chi: Simplified Tai Chi for Health & Longevity*.

Boston, MA: YMAA Publication Center.

Rosenfeld, A., (2013). *Tai Chi The Perfect Exercise: Finding Health, Happiness, Balance, and Strength*, Boston, MA: De Capo Press.

Sandel, S. L. & Johnson, D. R. (1987). *Waiting At The Gate: Creativity And Hope In The Nursing Home*. NY, London: Routledge: Taylor and Francis group.

Sellers-Young, B. (2001). *Breathing, Movement, Exploration*. Montclair, NJ: Hal Leonard Corporation.

Wang C, Bannuru R, & Ramel J. (2010). Tai Chi on psychological well-being: systematic review and meta-analysis. *BMC Complementary and Alternative Medicine*. 10, 23.

Wang W. C., Zhang A.L., & Rasmussen B. (2009). The effect of Tai Chi on psychosocial well-being: a systematic review of randomized controlled trials. *Journal of Acupuncture and Meridian Studies*. 2(3), 71–181.

Wei, G.X., Dong, H.M., Yang, Z., Luo, J. & Zuo, X.N. (2014). Tai Chi Chuan optimizes the functional organization of the intrinsic human brain architecture in older adults.

Journal: *Frontier in Aging Neuroscience*. 6. Retrieved from online publication: <http://www.journal.frontiersin.org>.

Yu, Tricia. (2015). *Tai Chi Fundamentals*. Retrieved from <http://http://taichihealth.com>.

Zhang, L., Layne, C., Lowder, T. & Lui, J. (2012). A review focused on the Psychological Effectiveness of Tai Chi on Different Populations: Evidence-Based Complimentary and Alternative medicine. Retrieved from <http://www.hindawi.com/journals>

